

Redesignation Demonstration

And

Maintenance Plan
for the Missouri Portion of the
St. Louis Ozone Nonattainment Area

Adoption
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Missouri Department of Natural Resources
Air and Land Protection Division
Air Pollution Control Program
Jefferson City, Missouri

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Executive Summary

The Missouri Department of Natural Resources' Air Pollution Control Program has prepared a Redesignation Demonstration and Maintenance Plan document for the St. Louis area to proceed with a redesignation request. The department is requesting that the U.S. Environmental Protection Agency (EPA) redesignate the St. Louis nonattainment area to attainment status for the one-hour Ozone National Ambient Air Quality Standard (NAAQS).

Ozone monitoring data shows that violations of the NAAQS are no longer occurring within the St. Louis region. The St. Louis metropolitan area has recorded three years of complete, quality assured ambient air quality monitoring data for 2000-2002, demonstrating attainment with the one-hour ozone standard. Also, the department has demonstrated that the improvement in air quality is attributed to emission reductions, which are permanent and enforceable. The emission reductions are due to several federal and state emissions control measures.

In addition, this document addresses the Clean Air Act (CAA) requirements for the maintenance plan. It contains all the required elements to ensure maintenance of the one-hour ozone standard. A comprehensive emission inventory was developed for year 2000, 2007, and 2014. The department demonstrated maintenance by showing the future projected emissions of ozone precursors would not exceed the inventory level of the attainment year, 2000. The downward trend in emissions through the projected year 2014 is contributed to state and federal control measures such as regional nitrogen of oxides (NO_x) reductions, reformulated gasoline (RFG) and the enhanced inspection and maintenance (I/M) program.

Based on these emission trends, it is expected that the air quality will continue to meet the one-hour standard ozone NAAQS throughout the maintenance period.

Several commitments are made to ensure maintenance of the one-hour ozone standard. A commitment to submit subsequent maintenance plan revisions within eight years from the date of redesignation. A comprehensive emission inventory will be updated every three years. The department also commits to continue to enforce all applicable requirements in the state implementation plan. The department commits to continue to operate ozone-monitoring network to verify the continued attainment of the one-hour ozone standard and implement contingency measures as required.

Finally, the department developed a transportation emission budget as required in the maintenance plan for conformity determinations. The budget establishes a cap on emissions that cannot be exceeded by predicted highway and transit vehicle emissions. Emissions expected from implementation of highway plans and programs should be consistent with estimates of emissions from motor vehicles and necessary emission reduction contained in the applicable state implementation plan (SIP).

1. Introduction

The State of Missouri requests that the EPA redesignate the portion of the St. Louis Metropolitan Nonattainment area (SLMNAA) to attainment status for the one-hour ozone NAAQS. A maintenance plan is required before an area can be redesignated to attainment status. This document describes the Missouri portion of the maintenance plan and accomplishes all the requirements for redesignation. The department's Air Pollution Control Program has developed this plan in cooperation with the Illinois Environmental Protection Agency (IEPA) and EPA Region V and VII. The St. Louis metropolitan area has recorded three years of complete, quality assured ambient air quality monitoring data for 2000-2002, demonstrating attainment with the one-hour ozone standard.

This document addresses the Clean Air Act Amendment (CAAA) section 107 (d)(3) requirements for redesignation and the section 175A maintenance plan requirements. Section 107 (d)(3) of the CAAA provides that an attainment area can be redesignated to attainment if the following criteria are met: 1) the EPA has determined that NAAQS for the applicable pollutant has been attained, 2) the applicable implementation plan has been fully approved under section 110(k), 3) the EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions, 4) the state has met all applicable requirements for the area under section 110 and part D, and 5) the EPA has fully approved a maintenance plan, including a contingency plan for the area under section 175A.

Section 175A of the CAAA provides the general framework for a maintenance plan. This maintenance plan provides the continued attainment for the one-hour NAAQS for the St.

Louis area for a period of at least ten years after redesignation, including contingency measures to assure the prompt correction of a violation of the NAAQS that occurs after redesignation. Eight years after redesignation, the state will need to revise its plan to include another ten-year maintenance plan

1.1. National Ambient Air Quality Standard for Ozone

Under the CAA, EPA was required to set a NAAQS for five criteria pollutants that endanger public health and the environment. States and tribes then must develop and carry out strategies and measures to attain these NAAQS. In 1971, the EPA set a NAAQS for photochemical oxidants. In 1979, the EPA changed the photochemical oxidant standard to a national ozone standard of 0.12 parts per million (ppm) of ozone in ambient air, based on a one-hour averaging period, or 0.12 ppm. EPA sets health-based or "primary" standards to protect human health, and welfare-based or "secondary" standards to protect the environment (crops, vegetation, wildlife, buildings and national monuments, visibility, etc.).

Under the research authorities of the CAA, EPA carries out ozone research to provide a strong scientific basis for (1) changing or reaffirming the NAAQS, and (2) implementing the NAAQS. EPA reviewed the NAAQS for ozone, as required by the CAA, and promulgated a new standard in July 1997. The new ozone standard of 0.08 parts per million (ppm) is based on an eight-hour averaging period. EPA replaced the existing one-hour standard of 0.12 ppm with the eight-hour standard under subpart 1 of the CAA, Title I, Part D for areas that had attained the standard. However, after EPA was challenged in court, the one-hour standard was reinstated in those areas where EPA had determined the standard had been met. This did not include the St. Louis area. It is expected that many of the control measures that have been

implemented to help maintain the one-hour standard will also contribute to attainment of the eight-hour standard. However, the maintenance plan does not address the eight-hour ozone standard. Currently, EPA is in the proposal process of implementing the eight-hour ozone standard.

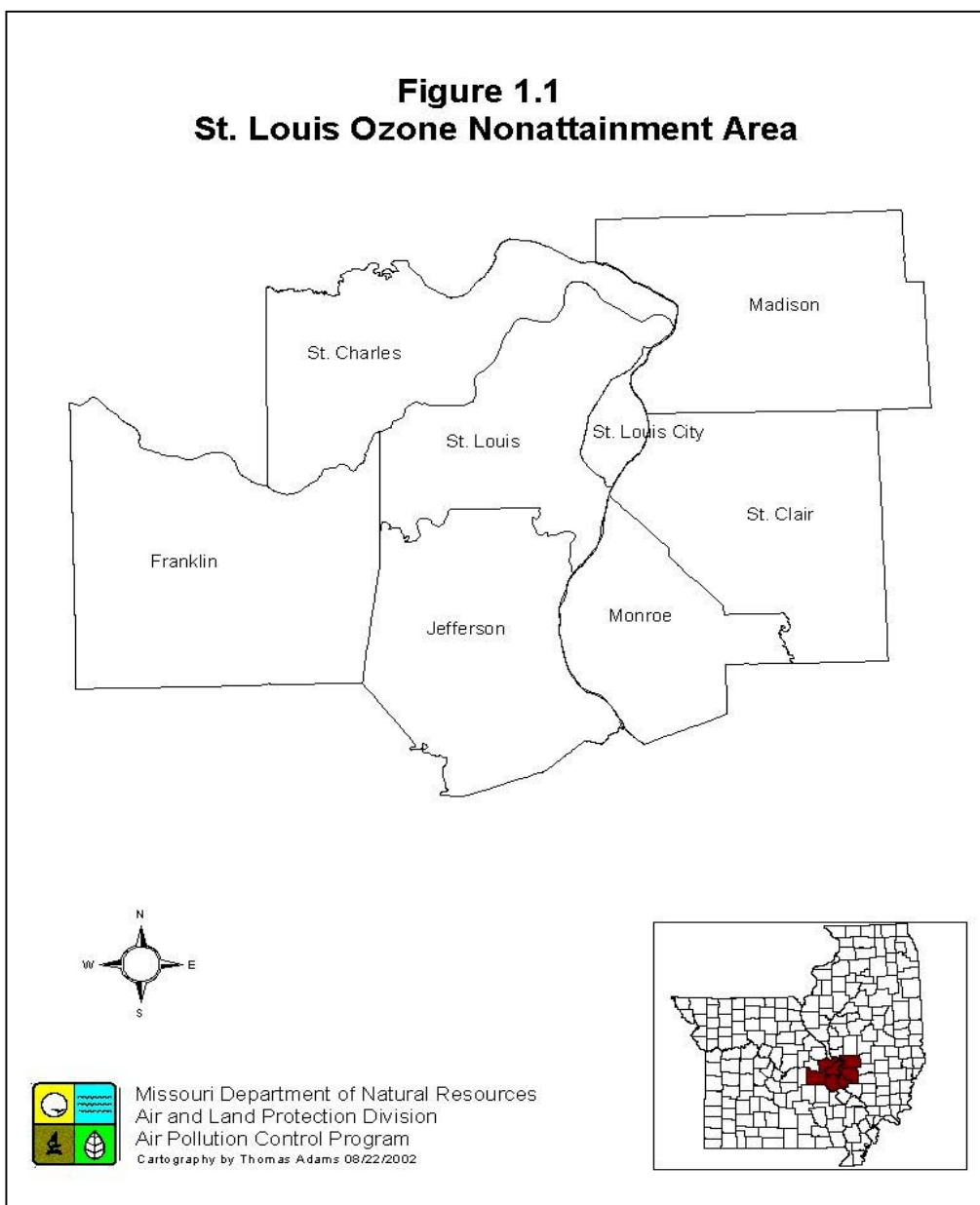
1.2. Health Effects of Ozone

Ozone is a reactive chemical compound. It consists of three oxygen atoms with chemical symbol O₃. Ground-level ozone is the most complex, difficult to control, and pervasive of the six air pollutants for which EPA has set NAAQS. Unlike most other pollutants, ozone is not emitted directly into the air by specific sources, but is formed by a photochemical reaction between NO_x and volatile organic compounds (VOC) in the presence of sunlight and is usually associated with elevated ambient temperatures. There are numerous sources of these pollutants. Some common sources include: gasoline vapors, chemical solvents, combustion products of fuels, and consumer products. Emissions of NO_x and VOC from motor vehicles and stationary sources can be carried hundreds of miles from their origins, and contribute to high ozone concentrations over very large, multi-state regions.

Ozone is a strong oxidizing agent with the potential to damage or impair normal functioning of the lungs in healthy people, as well as in those with respiratory problems. Relatively low amounts of ozone can cause chest pain, shortness of breath, and coughing. Ozone may also worsen asthma, bronchitis, and emphysema. Ozone damages trees and other natural vegetation, reduces agricultural productivity and causes or accelerates deterioration of building materials, surface coating, rubber, plastic products and textiles.

1.3. Geographical Description of St. Louis Attainment/Maintenance Area

The St. Louis nonattainment area is located on both sides of the Mississippi River. The Missouri portion of the St. Louis nonattainment area as defined in a state Rule 10 CSR 10-6.020 is comprised of St. Louis, St. Charles, Jefferson and Franklin Counties and the City of St. Louis. The Illinois portion consists of Madison, Monroe, and St. Clair Counties. A map describing the nonattainment and attainment maintenance area boundaries is shown in Figure 1.1



1.4. St. Louis area One-hour Ozone Designation History

The CAAA of 1990 requires states with areas that are not in compliance with any NAAQS to develop state implementation plans (SIP). The CAAA classifies the areas by magnitude of noncompliance for the Ozone Nonattainment Areas. Of the five classifications (Marginal, Moderate, Serious, Severe and Extreme), the St. Louis ozone nonattainment Area has been classified as a bistate moderate nonattainment area. Section 181 requires states with moderate nonattainment areas to achieve attainment by 1996. Attainment demonstration document and Rate of Progress Plan (ROP) for the St. Louis Ozone Nonattainment were submitted in 1995 and in 1999.

The St. Louis Ozone Nonattainment Area failed to attain the one-hour NAAQS by 1996. The states of Missouri and Illinois requested an extension of the attainment date for the one-hour ozone standard in the St. Louis area. To qualify for an extension, the EPA's guidance required states to demonstrate that an area is significantly affected by ozone transported from upwind sources, has adopted all necessary local emission control measures, and has submitted an approvable attainment plan to EPA. In 1999, Missouri and Illinois conducted additional modeling to update the attainment demonstration submittal which included local and regional emission control measures such as regional NO_x control requirements. The revised attainment demonstration submittal assumed that the states under the EPA NO_x SIP call, including the eastern one-third of Missouri, would limit electric generating units to an emission rate of 0.25 lbs NO_x/mmBTU heat input. In addition, a revision to the ROP was adopted by the Missouri Air Conservation Commission (MACC) on October 28, 1999.

On June 26, 2001, the EPA published in the Federal Register a final rule granting an attainment date extension for the St. Louis Ozone Nonattainment Area. The St. Louis area retains its Moderate nonattainment classification and has a new attainment deadline of November 15, 2004. The EPA determined that the plans submitted by Missouri and Illinois contained sufficient control measures to demonstrate that the St. Louis area will attain the NAAQS by November 15, 2004. EPA also determined that the area had met all the CAAA requirements applicable to the area as of June 2001. With this attainment date extension, the area avoided reclassification to Serious nonattainment status and the associated requirements. However, the Sierra Club and Missouri Coalition for the Environment filed a petition for review of the June 26, 2001, rulemaking and related EPA actions with the court. The motion requested that the court set aside the EPA's final rulemaking that approved the attainment demonstration and granted the attainment date extension. The case is currently under litigation and a decision is pending in the seventh Circuit Court of Appeals.

2. Redesignation Requirements

Section 107 (d)(3)(E) of the 1990 CAAA lists the following five required criteria for a redesignation request. An area must meet all the five criteria before being redesignated to attainment/maintenance status. A state may proceed with both the redesignation request and the maintenance plan on a parallel track. In addition, Missouri followed the EPA published guidance entitled "Procedures for Processing Requests to Redesignate Areas to Attainment" in preparing the redesignation demonstration and the maintenance plan. Accordingly, this document demonstrates that the St. Louis Metropolitan nonattainment area meets all of the following criteria for redesignation.

- The NAAQS has been attained. This standard is 0.12 ppm for ozone.
- The applicable SIP has been fully approved by the EPA under section 110(k).
- The improvement in air quality is due to permanent and enforceable reductions in emissions.
- The state has met all applicable requirements for the area under section 110 and part D.
- The EPA has fully approved a maintenance plan, including a contingency plan, for the area under section 175A.

2.1. Attainment of the Standard

EPA must determine that the one-hour ozone NAAQS in ambient air is demonstrated if the average annual number of expected exceedance is less than or equal to one. Section 3.0 demonstrates St. Louis has attained the national one-hour standard for ozone. This demonstration is based on three years of quality assured monitoring data as specified in 40 CFR 58.10.

2.2. Implementation Plan (SIP) Approval

The area must have a fully approved ozone SIP. Missouri has adopted several regulations and programs as required by an approved SIP in an effort to reduce VOC and NO_x. Section 5 illustrates the various SIP submittals, which were adopted by the MACC. EPA fully approved the SIP measures which were due as of June 26, 2001, when it approved the attainment demonstration for the area.

2.3. Permanent and Enforceable Improvement

The state must show that the improvement in air quality between the year violations occurred and the attainment year is attributed to permanent and enforceable emission reduction.

Section 4 of the emission inventory presents the reduction that was achieved from federal and state measures. The emission reduction is not based on temporary shutdowns or adverse economic conditions but due to permanent and enforceable control measures. These control measures that have brought the St. Louis area into attainment of the ozone standard are specified in section 5 of this document. In addition, section 3 demonstrates that the improvement is not due to unusually favorable meteorology. Also, this plan includes a state commitment in section 7 to continue to enforce all applicable requirements of past revisions to the SIP after St. Louis ozone nonattainment is redesignated to attainment

2.4. Section 110 and Part D Requirements

For the purpose of the redesignation, all the requirements of the section 110 and part D of the CAA that were applicable prior to submittal of a complete redesignation request must be met. By and large, these requirements were applicable to previously approved SIP submissions previously approved by EPA. Applicable section 110 and Part D requirements that specifically apply to the maintenance plan are addressed in this document. These requirements include contingency measures, and the establishment of a transportation conformity budget.

2.5. Maintenance Plans

The focus of this document is the maintenance plan, including a demonstration that the area will maintain one-hour ozone standard for at least ten years after redesignation. Within eight years, the state is committed to submit to EPA additional revisions to the SIP for maintaining NAAQS for ten years after the expiration of the first ten-year period. This plan also includes contingency measures to ensure prompt and effective correction of any violation of the NAAQS that may occur after redesignation. A public hearing is required prior to adoption.

The maintenance plan must contain the following elements which are deemed necessary to ensure maintenance of the ozone standard in areas seeking redesignation from nonattainment to attainment:

- A comprehensive emission inventory completed for the “attainment year” and projection of the emission inventory for future years
- A maintenance demonstration
- An approved monitoring network and a commitment that once designated, the state will continue to collect data to verify maintenance of the attainment status
- A commitment for periodic updates of the inventory
- A mobile source emission budget for transportation conformity
- A commitment to implement contingency measures from a potential list of control options
- A commitment to submit subsequent maintenance plan revisions

3. Ozone Monitoring

EPA’s published guidance document, “Procedures for Processing Requests to Redesignate Areas to Attainment” (September 4, 1992), details specific requirements regarding the collection and use of ambient air monitoring data needed to support a redesignation request. Before the St. Louis Metropolitan area can be redesignated, Missouri and Illinois must demonstrate that the NAAQS for ozone, as published in 40 CFR 50.9, has been attained. Ozone monitoring data must show that violations of the NAAQS are no longer occurring within the St. Louis region. Ambient air quality data must show that the average annual number of expected exceedances of the NAAQS, as described in 40 CFR 50 Appendix H, is less than or equal to 1.0, based on data from all monitoring sites in the area or its affected

downwind environs. This showing must rely on three complete, consecutive years of quality assured data. Further, the air monitoring data must be quality assured in accordance with 40 CFR 58.10, recorded in EPA's AIRS data base, and made available to the public. Finally, the two states must commit to continue to operate an appropriate monitoring network to verify the maintenance of the attainment status, once the area has been redesignated.

3.1. Ozone Monitoring Network

In the 2000 – 2002 period, there were 16 ozone monitors located in the nonattainment counties in the St. Louis region: 11 in Missouri and five in Illinois (see Appendix A). In addition, four monitors were located in the surrounding counties

3.2. Monitoring Based Attainment Demonstration (Design Values and Exceedance)

The one-hour ozone NAAQS is attained when the expected number of days per calendar year with maximum hourly average concentrations above .12 ppm is equal to or less than 1.0. The specified attainment test requires that the expected number of days with concentrations above 0.12 ppm (exceedance days) are to be estimated by calculating the average number of exceedance days during the most recent three-year period. The “expected exceedance” form of the NAAQS is intended to account for days with missing values. If a valid daily maximum one-hour ozone value (i.e., based on at least 75% of the daylight hourly ozone values) is available for every day of the ozone season, then the actual number of exceedances can be used to assess attainment/nonattainment. If a valid daily maximum one-hour ozone value is not available for every day, then it will be necessary to account for missing values when estimating the number of exceedances.

The expected number of exceedance days (i.e., the expected exceedances) for the 2000 – 2002 period is shown in Appendix A for each monitor in the St. Louis nonattainment area. Based on the “expected exceedances” form of the NAAQS, all of the monitoring stations meet the attainment test specified in 40 CFR 50 Appendix H, since the expected number of exceedances at each monitor is equal to or less than 1.0. The actual number of exceedances at each site for 1999, 2000, 2001, and 2002 are presented in Appendix A. During the period 2000 – 2002, there were nine exceedances in eight days in the St. Louis area, but no violations of the NAAQS.

Ozone concentrations in an area are highly dependent on meteorological conditions. Meteorological conditions that are favorable, or conducive, for causing elevated ozone concentrations in the St. Louis area are:

- Maximum temperature greater than 85 degrees Fahrenheit
- Wind speeds less than five miles per hour
- Solar radiation greater than 500 Langley
- Little or no precipitation

To evaluate whether ozone air quality improvements in the area are caused by favorable meteorological conditions (i.e. lack of ozone conducive conditions) or due to emissions reductions, the department’s Air Pollution Control Program and IEPA have compared the trend of one-hour ozone exceedances to ozone conducive days since 1977 (see Appendix A). This graph demonstrates that while conducive days have shown no noticeable trend up or down, only yearly variations, exceedances have decreased from over 120 in the late 1970s to only a few in the last three years. Levels became much lower in the late 1980s and 1990s and compliance levels were achieved in 2000. Year to year fluctuation of conducive days cannot

be correlated with higher or lower exceedance levels over the last few years, indicating a disassociation with meteorological effects.

3.3. Monitoring-based Attainment Demonstration – Design Values

The design value of the St. Louis area also demonstrates a steady improvement in ozone air quality. The current EPA method for calculating the ozone design value is to select the fourth highest daily maximum one-hour value over the three-year period. The data (see Appendix A) demonstrate that ozone air quality has improved dramatically throughout the urban area and that the NAAQS for ozone has been attained for the 2000 – 2002 period.

3.4. Quality Assurance Program

The department's Air Pollution Control Program and IEPA have quality assured all data shown in Appendix A in accordance with 40 CFR 58.10 and the department's Air Pollution Control Program and IEPA Quality Assurance Project Plans, which describes the department's Air Pollution Control Program and IEPA's standard operating procedures for operating the ambient monitoring networks and validating the data. The department's Air Pollution Control Program and IEPA have recorded the data in the EPA's AIRS database, which is available to the public.

3.5. Continue Monitoring

Missouri commits to continue monitoring ozone levels according to an EPA approved monitoring plan, as required to ensure maintenance of the ozone NAAQS. Should changes in the location of an ozone monitor become necessary, the department's Air Pollution Control Program and IEPA will work with EPA to ensure the adequacy of the monitoring network. The department's Air Pollution Control Program and IEPA will continue to quality assure the

monitoring data to meet the requirements of 40 CFR 58. The department's Air Pollution Control Program and IEPA will continue to enter all data into AIRS on a timely basis in accordance with federal guidelines.

4. Emission Inventory

A redesignation request must contain a demonstration that the improvement in air quality between the year that violations occurred and the year that attainment was achieved is based on permanent and enforceable emission reductions. This section presents emission inventories for the maintenance plan. Emission inventories are provided for the 2000 attainment year, and the 2007 and 2014 maintenance year. The attainment year refers to the first year of the three-year period used to demonstrate attainment. The 2007 and 2014 inventories provide level of projected emissions that are sufficient to maintain the ozone NAAQS. Missouri will continue to update the emission inventories every three years to maintain compliance with one-hour standard. Updated emission inventories will be compared to the 2000 attainment year inventory. The 1990 ROP emission inventory is also included for the purpose of comparison. Comprehensive point and area source emission inventories are found in appendix B and C.

4.1 Attainment Year Inventory-2000

Table 4.1 is a summary of the St. Louis nonattainment area emission inventory for the attainment year, 2000. The emission inventory includes point, area, on-road and off-road mobile sources for precursors of ozone (VOC and NO_x). Both point and area source inventories were grown from the 1999 emission inventories. The appropriate growth factors for these categories were incorporated. Any facility that had permanent shutdown in 2000 or later was excluded from the emissions projections. All banked emissions were included in

the point source inventory. The emissions data is presented in tons per ozone season day and where possible the totals were taken from the data submitted on the ozone worksheets in the Emission Inventory Questionnaire (EIQ) by the facility. If the facility did not submit ozone worksheets with the 1999 EIQ, the daily ozone season emissions were derived from annual emissions and the percent that the facility operated during the ozone season.

An area source report entitled “Area Source Inventory” and off-road emission inventory are found in Appendix C and E. The reports provide a detailed information on the methodology, employment, and population data.

On-road Mobile source emissions were calculated using EPA’s MOBILE5B and MOBILE6 emission models and vehicle miles traveled (VMT) data provided by the East-West Gateway Coordinating Council (EWGCC). Because the 1990 on-road emission inventory was originally derived from MOBILE5B model, the same emission model was employed to make the comparison discussed in section 4.2 consistent. Recently, EPA developed MOBILE6 emission model to perform future on-road emission inventories. For the purpose of the maintenance demonstration and transportation budget, the department’s Air Pollution Control Program utilized MOBILE6 to evaluate emissions for 2000, 2007, and 2014.

Table 4.1
2000 Missouri Portion of the St. Louis Ozone Nonattainment Area
VOC and NO_x Emissions

(Emissions Stated in tons per Ozone season weekday)

Source category	VOC	NO _x
Point Sources	46.59	165.96
Area Sources	57.38	32.27
On Road Mobile Sources	103.79 / 84.56 ^a	181.75 / 134.45 ^a
Off-Road Mobile Sources	40.59	73.16
Total	248.35 / 229.12	453.14 / 405.84

a Mobile 5.b

4.2 Air Quality Improvements and Emission Controls

The department's Air Pollution Control Program relied on federal and state control strategies to attain the standard as provided in the ROP plan. Permanent and enforceable precursor emission reductions have contributed to improvements in ozone air quality and to attainment of the ozone NAAQS. Some of these emission reductions were due to the application of the "15%" ROP Plans implemented in both Missouri and Illinois, some were due to the application of tighter federal standards on new vehicles, and some were due to requirements for reformulated and low Reid Vapor Pressure (RVP) gasoline for motor vehicles. Also, Title IV of the CAA required the reduction of NO_x from utility sources. Section 5.0 of this report describes these regulatory programs in more detail. In this subsection, emission levels from the attainment year, 2000, are compared to emission levels estimated in 1990 when the St. Louis nonattainment area was first proposed for a Moderate nonattainment classification. Table 4.2 summarizes 1990 emissions by major source category and by pollutant for the Missouri portion of the St. Louis nonattainment area.

Comparing the 1990 inventory to the 2000 inventory (see Table 4.1) indicates that point source VOC emissions decreased by about 35 tons per day (tpd), and area source VOC emissions decreased by about 30 tpd. Emissions from automobile fluid, commercial deep fat frying, commercial charbroiling and breweries subcategories of area sources inventory are not included in the 2000 inventory. The estimated 1990 emissions from these subcategories are 5.66 tons per day. The adjusted area source VOC decrease from 1990 to 2000 is 25 tpd. On-road mobile source VOC emissions decreased by about 51 tpd, and off-road mobile source VOC emissions decreased by about 24 tpd. The combination of these source categories results in a total VOC emissions reduction of over 121 tpd. During the same period, NO_x emissions in the Missouri portion of the NAA decreased by almost 173 tpd, from 626.4 tpd to 453.26 tpd.

Table 4.2
1990 Missouri Portion of the St. Louis Ozone Nonattainment Area
VOC and NO_x Emissions

(Emissions Stated in tons per Ozone season weekday)

Source category	VOC	NO _x
Point Sources	81.97	347.61
Area Sources	87.74	29.47
On Road Mobile Sources	135.42 ^a	135.00 ^a
Off-Road Mobile Sources	64.30	114.32
Total	369.43	626.4

a Mobile5.b

4.3 Emission Projections

A maintenance plan must contain a demonstration that the level of emissions projected for the ten-year period following redesignation are sufficient to maintain the ozone NAAQS.

Accordingly, Missouri has projected VOC and NO_x emissions for the Missouri portion of the St. Louis nonattainment area for 2014. Missouri has also projected emissions to 2007, to represent a midpoint during the maintenance period. Emissions for these two projection years are compared to emission levels in 2000 to determine if emissions are sufficient to maintain the NAAQS during this period.

Growth factors for electric generating units were taken from the Integrated Planning Model which were supplied by EPA. Point source emissions for non- Electric Generating Units (EGU) were projected using BEA growth factors. Although there were other methodologies that were considered such as EGAS which incorporates growth factors from Wharton Econometric and Forecasting Association (WEFA) and Bureau of Labor Statistics (BLS), the BEA growth factors provides relatively modest growth factor estimates. The average estimated VOC growth rates for point sources from 1999 to 2000, 2007, and 2014 are 1.4 %, 14.7% and 26.9 %, respectively. The emission inventories from 1996 to 1999 excluding controlled point sources identified in the ROP for the same period indicate downward trends for VOC and NO_x emissions. Therefore, utilizing the BEA growth factors are believed to be a conservative approach.

Area source growth factors can be obtained from BEA, and EGAS. Most area source categories take population and employment figures as surrogates for estimating emissions. Therefore, appropriate population and employment growth factors were utilized in the projection. The estimated VOC growth rates from 1999 to 2000, 2007, and 2014 are 1.28 %, 11.57% and 21.56 %, respectively. There are some categories that do not take population data as a surrogate. For these categories, BEA data was chosen. The department's Air Pollution Control Program utilized BEA methodology to develop the emission inventory for

the area sources to be consistent with point source emission inventory. The table below illustrates slight differences between the two methodologies for the purpose of the maintenance demonstration.

Table 4.3
BLS vs. BEA methodology illustration for area sources

Year/	2000	2007	2014
Methodology	tpd	tpd	tpd
BLS VOC	58.0	65.2	71.9
BEA VOC	57.7	63.6	69.3
BLS NO _x	32.5	34.4	36.2
BEA NO _x	32.7	36.5	40.1

On-road motor vehicle emissions were estimated using EPA MOBILE6 motor vehicle emissions factor model. The figures assume the continued use of low-RVP gasoline and operation of an enhanced vehicle I/M program. A detailed discussion on the methodology is found in section 6.0 of this maintenance plan.

EPA developed off-road emission inventory utilizing BLS growth factor model for the emission projections. The department's Air Pollution Control Program reviewed the inventory for off- road emissions and accepted all the values with the exception of Commercial Marine Vessels (CMV) category. This portion of the plan was actually completed by the EPA, as per our request for assistance. The NONROAD Draft Version 2.2.0 was used to estimate the emissions, but for quality assurance purposes this was

compared with other cities for Railroad & Airport emissions because the National Emission Inventory results for these 2 categories were also calculated by using the same model. The only portion of the non-road inventory which was not completed by EPA's assistance was the CMV emissions. The method of estimating CMV emissions is well documented within the report. The department's Air Pollution Control Program estimated emissions from CMV using EPA document entitled "Commercial Marine Emission Inventory for EPA Category 2 and 3 Compression Ignition Marine Engines in the United States Continental and Inland Waterways." Off road inventory is found in Appendix E. Tables 4.4-4.5 show the projected emissions for 2007 and 2014.

Table 4.4
2007 Missouri Portion of the St. Louis Ozone Nonattainment Area
VOC and NO_x Emissions

(Emissions Stated in tons per Ozone season weekday)

Source category	VOC	NO _x
Point Sources	47.72	146.62
Area Sources	57.19	34.12
On Road Mobile Sources	74.46	130.55
Off-Road Mobile Sources	27.91	66.01
Total	207.28	377.3

Table 4.5
2014 Missouri Portion of the St. Louis Ozone Nonattainment Area
VOC and NO_x Emissions

(Emissions Stated in tons per Ozone season weekday)

Source category	VOC	NO _x
Point Sources	51.73	155.45
Area Sources	59.42	35.58
On Road Mobile Sources	47.14	68.59
Off-Road Mobile Sources	24.28	58.84
Total	182.57	318.46

4.4 Demonstration of Maintenance

As required by the CAA, each request for redesignation shall be accompanied by a SIP revision, which provides for maintenance of the NAAQS for at least ten years after redesignation. Comparing projected 2007 and 2014 emissions with attainment year 2000 emissions demonstrate maintenance of NAAQS. A state demonstrates attainment if the future emissions of pollutants or precursors will not exceed the level of the attainment inventory. Table 4.6 illustrates downward trends in both VOC and NO_x emissions through projected year 2014. Based on these emission trends, it is expected that the air quality will continue to meet the one-hour standard ozone NAAQS throughout the maintenance period.

The emission decrease is due to several local and regional emissions control measures such as regional NO_x reductions, RFG and I/M program. The RFG and I/M program emission reductions are discussed in section 6.0 of this maintenance plan. One of anticipated major reduction in NO_x emissions is due to the NO_x SIP call. Missouri is committed to implement NO_x reduction requirements under the state rule 10 CSR 10-6.350 entitled “Emission

Limitations and Emissions Trading of Oxides of Nitrogen.” It establishes emission limitation on electric generating units. Currently, EGU in the eastern one-third of the state are subject to 0.25 lbs NO_x /mmbtu heat input emission limitation. Electric generating units in the western two-thirds of the state are limited to an emission rate of 0.35 lbs NO_x/mmbtu of heat input. The expected NO_x emission reductions in Missouri and the St. Louis nonattainment portion of the eastern one-third of Missouri are shown in Table 4.7 and Table 4.8, respectively. The emission reduction is expected to occur starting in 2003.

Table 4.6
Comparison of 2000, 2007, and 2014 Emission Estimates Missouri Portion of the St. Louis Nonattainment area

(Emissions stated in tons per ozone season weekday)

	2000	2007	2014
VOC	248.35	207.28	182.57
NO_x	453.14	377.30	318.46

Table 4.7
Estimated NO_x Emissions Reductions from Utility Boilers in the Eastern one-third of Missouri Resulting from Implementation of the NO_x Controls

(Emissions stated in tons per ozone season weekday)

2000 NO_x emissions	340.7
2007 NO_x emissions	142.1
Net Reduction	198.6

Table 4.8
Estimated NO_x Emissions Reductions from Utility Boilers in the Missouri Portion of the St. Louis Resulting from Implementation of the NO_x Controls

(Emissions stated in tons per ozone season weekday)

2000 NO_x emissions	164.8
2007 NO_x emissions	114.3
Net Reduction	50.5

5. Control Measures and Regulations

This section identifies control strategies that have been evaluated and implemented by the department. It is reasonable to attribute the improvement in the ambient ozone concentration in the St. Louis Metropolitan area to emission reductions, which are permanent and enforceable. The existing control measures identified in the ROP plan, including federal and state measures, which brought the area in attainment, will remain in effect. Existing control measures and other measures identified in the maintenance plan are relied upon to maintain the one-hour air quality standard.

5.1 Fifteen-Percent Rate of Progress Plan

The 1990 CAAA require states with areas that are not in compliance with the NAAQS to develop SIP revisions to bring those areas into compliance. Accordingly, the ROP was developed to describe how the area will achieve a minimum of fifteen percent (15%) VOC emission reduction. The ROP plan included a comprehensive strategy to reach target level by 1996.

In the 1999-revised ROP Plan, the department's Air Pollution Control Program revised the ozone precursor emission levels for 1990, the baseline year. In addition, the ROP plan incorporated legislative changes to the vehicle I/M and RFG.

The total revised VOC emission in the ROP is 564.53 tpd. The changes are due to a slight increase in emissions from area and mobile sources and significant emissions decrease from off-road sources. In calculating the emission reduction target, emission growth factor and adjusted baseline inventory were utilized. The adjusted inventory does not include biogenic

emission category because it cannot be part of an enforceable control strategy. The target level of 265.11 tpd in the ROP plan is met by the end of 1996 and the future VOC emissions are projected to remain below the ROP level.

The primary controls in the revised ROP plan are vehicle I/M and RFG. Combined, these measures were expected to reduce VOC emissions by 32.28 tpd. Additional federal and state measures were included in the ROP plan. The following are lists of state and federal regulations and programs adopted since 1990 and were included in the ROP plan.

- *State Rules*

1. Open Burning Restrictions (amendment)
2. Control of Petroleum Liquid Storage, Loading and Transfer (amendment)
3. Control of Emissions from Aerospace Manufacture and Rework Facilities
4. Control of Emissions from Solvent Metal Cleaning (amendment)
5. Control of Emissions from Rotogravure and Flexographic Printing Facilities (amendment)
6. Motor Vehicle Emissions Inspection (amendment)
7. Control of Emissions from Bakery Ovens
8. Control of Emissions from Lithographic Printing Operations
9. Control of Gasoline RVP (new rule and amendment)
10. Control of VOC Emissions from Traffic Coatings
11. Control of Emissions from Aluminum Foil Rolling
12. Control of Emissions from Solvent Cleanup Operations
13. Municipal Solid Waste Landfills
14. Control of Emissions from Volatile Organic Liquid Storage
15. Control of VOC Emissions from Wood Furniture Manufacturing Operations
16. Control of Emissions from Batch Process Operations
17. Control of VOC Emissions from Reactor Processes and Distillation Operations Processes in the Synthetic Organic Chemical Manufacturing Industry

- *State Mobile Source Controls*

1. Phase II RFG
2. Vehicle inspection and maintenance program

- *Federal Control Measures*

1. Hazardous Organic National Emissions Standards for Hazardous Air Pollutants (NESHAP)

2. Benzene NESHAP
3. Federal motor vehicle control program
4. Architectural and industrial maintenance coatings rule
5. Automobile refinishing rule
6. Federal gasoline detergent additive rule
7. Federal off-road engine, equipment and vehicle program
8. Consumer and commercial products solvent control

5.2 Volatile Organic Compound Reasonably Available Control Technology (RACT)

Much progress has been made over the last ten years to reduce VOC emissions. While major sources have been controlled to achieve RACT level, Missouri has identified and adopted additional controls using Alternative Control Technique (ACT) documents for many non-major sources. These rules were identified in the ROP plan.

5.3 Nitrogen Oxides (NO_x) Reasonably Available Control Technology (RACT)

In 2000, the department's Air Pollution Control Program submitted to the EPA a number of regulations pertaining to the control of emissions of NO_x from major sources located in the St. Louis nonattainment area. These regulations are covered by existing control technique guidelines. The ROP plan did not include RACT for NO_x.

5.4 Controls to Remain in Effect

The department provides assurance that all of the control measures adopted by state rules and listed in the ROP plan or this document will be enforced to ensure maintenance of the one-hour ozone NAAQS. Any revisions to the control measures included as part of the maintenance plan will be submitted as a SIP revision to EPA for approval.

5.5 Provisions for Permitting New or Modified Emission Sources

In accordance with Part C, title 1 of CAA, Missouri has fully implemented the New Source Review (NSR) program for new major sources and significant modifications of existing

sources. Missouri state Rule 10 CSR 10 6.060 "Construction Permits Required" requires new NO_x or VOC sources with potential to emit greater than 40 tons per year (tpy) to undergo preconstruction review. PSD program is applicable to attainment areas. One of the major components of the PSD requirements is Best Available Control Technology (BACT) on major sources or significant modification of existing sources. In the nonattainment area, new sources or major modification of an existing major source with potential to emit greater than 100 tpy or 40 tpy, respectively, are subject to Lowest Achievable Emission Rate (LAER) requirements and offsets under section (7) of the state rule. A maintenance plan may contain provisions to revert to the PSD requirements after redesignation. The department's Air Pollution Control Program will retain the LAER and 1.15 : 1 offset ratio requirement through the 2003 ozone season and subsequently convert to an interim NSR program, unless contingency measures are triggered. LAER and offsets will be retained as contingency measures in the event the interim NSR program becomes effective. At a minimum, the interim NSR program will meet the Prevention of Significant Deterioration (PSD) requirements and shall include 1:1 offset provision and retain the applicability level of a 100 ton threshold for new sources and a 40 ton threshold for major modification to existing major sources. The interim NSR program shall be federally enforceable until eight-hour ozone attainment is achieved, or until a federal NSR framework for the eight-hour ozone standard is finalized. Maintaining the 40 and 100 ton major source threshold and emission offset requirements will prevent the St. Louis nonattainment area from backsliding. Sources may obtain offsets from the new banking and trading program. It is important to note that an updated recommendation for area designation for the eight-hour standard is expected to be submitted to EPA by 2003. Based on a three-year data, 2000-2002, the Missouri portion of St. Louis nonattainment area does not meet the eight-hour ozone standard.

6. Transportation Conformity

Approval of the Maintenance Plan for the Missouri portion of the St. Louis one-hour ozone nonattainment area will establish new VOC and NO_x motor vehicle emissions budgets for the maintenance year, 2014. EPA requires motor vehicle emissions budget to be established for the last year of the maintenance plan. Table 6.1 describes motor vehicle subarea emission budget for the Missouri portion of the St. Louis using MOBILE6.

The department developed conformity procedures in Missouri state Rules 10 CSR 10-6.300 “Conformity of General Federal Actions to State Implementation Plans” and 10 CSR 10-5.480 “Conformity to State Implementation Plans of Transportation Plans” to implement section 176 of the CAAA. These state rules set forth policy, criteria, and procedures for demonstrating and assuring transportation conformity of such activities to the applicable implementation plan. Transportation plans, programs and projects must not cause or contribute to any new violation of any standards nor increase the frequency or severity of any existing violation of any standard in areas designated as nonattainment or maintenance for any criteria pollutant or standard. For the purpose of maintaining NAAQS, transportation conformity requires certain transportation activities to be consistent with motor vehicle emissions budgets contained in the maintenance plan. In order to demonstrate conformity to the motor vehicle emissions budget, emissions from the implementation of a transportation plan or a transportation improvement program must be less than or equal to the budget level.

Table 6.1
Missouri Portion of the St. Louis Motor Vehicle Emissions Budget for VOC and NO_x

Budget year	VOC	NO _x
2014	47.14	68.59

6.1. MOBILE6-Based Motor Vehicle Emissions Budgets for the St. Louis Area

On January 29, 2002, the EPA released the MOBILE6 motor vehicle emissions factor model. MOBILE6 is a software application program that provides estimates of current and future emissions from highway motor vehicles. The model calculates emission rates under various conditions affecting in-use emission levels. MOBILE6 is used by the state to develop emission inventories and control strategies for SIPs and for transportation planning and conformity analysis. MOBILE6 is the latest in a series of models that date back to 1978, and is the first major update since the release of MOBILE5b in 1996. The state is required to revise the emissions budget after the final, formal release of MOBILE6 in the Federal Register.

Prior to MOBILE6 the state used MOBILE5 to calculate mobile emission factors. Because the state previously used MOBILE5 based estimates of the EPA's Tier II/low sulfur gasoline rule in preparing motor vehicle emissions budgets the state is required to revise and submit the budget within one-two years after MOBILE6 is available. EPA offered two options for revising SIPs and budgets that relied on MOBILE5 Tier II estimates. States could commit to revise their budgets within one year after MOBILE6. Alternatively, states could commit to revise their budgets within two years after MOBILE6 is released, if the state also commits that conformity will not be determined during the second year unless there are adequate SIP budgets in place that were developed using MOBILE6. For this maintenance plan, MOBILE6 was used in developing the motor vehicle emission budgets.

The mobile source budget is defined as the motor vehicle related portion of the projected emissions inventory used to demonstrate reasonable further progress milestones, attainment, or maintenance for a particular year specified in the SIP. The mobile source budget established a limit on emissions that cannot be exceeded by predicted highway and transit vehicle emissions. The CAA specifically requires conformity determinations to show that “emissions expected from implementation of plans and programs are consistent with estimates of emissions from motor vehicles and necessary emissions reductions contained in the applicable SIP”.

The St. Louis nonattainment area includes St. Louis City and the counties of Franklin, Jefferson, St. Charles, and St. Louis. While Franklin County is part of the nonattainment area the mobile controls used are different than the other counties and St. Louis City.

6.2. Comparison of MOBILE5b and MOBILE6

Numerous changes in the MOBILE model were made with the introduction of MOBILE6. The new model contains up to date and improved data on vehicle emissions. Past assumptions on emission technology and in-use deterioration have been analyzed and corrected. There are also new regulations that are incorporated into MOBILE6. As a result the emission factors and the resulting emissions are different from MOBILE5 to MOBILE6. In general MOBILE6 shows emissions to be higher in the past than with MOBILE5, but lower in the future.

EPA has stated that the benefits of the Tier II program cannot be accurately estimated until MOBILE6 is released. The MOBILE5 Tier II estimates were interim approximations based

on national defaults rather than local information and were not completely compatible with a MOBILE5 baseline. Therefore MOBILE6 emissions estimates for an area may be substantially different from those based on the interim MOBILE5 Tier II estimates (from John Seitz policy guidance memo on SIP Development and Transportation Conformity).

MOBILE6 adds an “off-cycle” correction to account for the high emissions associated with air conditioning use and high acceleration driving. Studies show these off-cycle emissions are high for vehicles built before 2001, but are expected to decline as “Supplemental Federal Test Procedure” regulations are phased into reduce these emissions. This off-cycle correction tends to make emission estimates for older vehicles higher in MOBILE6 compared to MOBILE5.

MOBILE6 includes lower “basic emission rates” for light-duty cars and trucks (compared to MOBILE5) for late 1980s and early 1990s model year vehicles, as well as for 2001 and newer vehicles (light- and heavy-duty) subject to National Low Emission Vehicle and Tier II emission standards. In general, the emission credits associated with I/M programs are lower with MOBILE6 compared to MOBILE5, even though the percentage reductions (before and after I/M) are comparable.

EPA comparisons of the two models show that MOBILE5 and MOBILE6 tend to predict similar emission factors around year 2005 for both VOC and NO_x.

The following table contains the St. Louis maintenance plan 2000, 2004, 2007, and 2014 motor vehicle emissions estimates developed using MOBILE6. Note that a motor vehicle emissions budget is not being proposed for the year 2000, but that emissions information is

being provided to demonstrate that the St. Louis maintenance plan remains valid when incorporating the MOBILE6-based emissions estimates.

Table 6.3
Missouri Portion of the St. Louis MOBILE6-based Motor Vehicle Emissions
Estimates in tons per day

	<u>2000</u>	<u>2014</u>
Volatile Organic Compounds	103.79	47.14
Oxides of Nitrogen	181.75	68.59

Should the St. Louis maintenance plan not be approved, then approval of this submittal would still address the state's commitment to replace the St. Louis Attainment Demonstration motor vehicle emissions budgets with those developed using MOBILE6.

6.3. MOBILE6 Model Input Assumptions

MOBILE6 requires specific command functions be inputted into the model. These command functions are the minimum and maximum temperature, the fuel RVP, and the calendar year of evaluation. All other command functions are considered optional in running the program.

Calculations for min/max temperature were done as described in the Technical Guidance on the Use of MOBILE6 for Emission Inventory Preparation (January 2002). Information on the ten days experiencing the ten highest ozone concentrations over a consecutive three-year period during which the ozone NAAQS was exceeded was gathered (Appendix D). The temperature values were based on data gathered at Lambert International Airport in St. Louis,

Missouri. The three consecutive year period was from 1999 - 2001. Minimum and maximum temperatures for those ten days were averaged and are used as input values for the model. These values are 72 and 93 degrees Fahrenheit, respectively. The humidity input value for the model was also calculated from the same ten days as described in the technical guidance document. This value is 60.4 grains of water per pound of dry air. This differs from the MOBILE6 default value of 75 grains of water per pound of dry air.

The fuel RVP was established in 1995 by state regulation 10 CSR 10-5.443 Control of Gasoline Reid Vapor Pressure at a level of 7.0 psi. In 1999, the State of Missouri opted into the federal Reformulated Gasoline (RFG) program. The RFG program and its fuel parameters supercede the RVP established by the state in 1995. Within the MOBILE6 model, the FUEL PROGRAM command contains the federal FRG fuel parameters and overwrites the RVP command.

The calendar year of evaluation value is used to reflect the year for which emission factors are calculated. The dates needed for this SIP revision are 2000, 2007 and 2014. Year 2004 is included for conformity purposes.

Registration data specific to the St. Louis nonattainment area was generated and imported as an external file into the MOBILE6 model. The external file is named VRegStl. The Missouri Department of Revenue supplied the registration data used to create the file. A query was run on passenger vehicles (LDGV) and trucks (LDGT12 and LDGT34). A towing weight category was used to subcategorize the vehicles. This includes both gas and diesel vehicles. Vehicles that were included in the counts had a unique vehicle identification number and had an assigned license plate number. Data was queried from a copy of the

registration data provided on the first day of the month. This data was from July 2002.

These classes of vehicles make up a significant portion of the vehicle population. MOBILE6 default registration data was used for all other vehicle classes.

The I/M waiver rates and cutpoints changed from year to year. The waiver rates in the I/M 240 program for years 2000 to 2004 are above the rates expected. Waiver rates of 20.0 were used as realistic values for modeling. External cutpoint files were created to reflect the cutpoints used in the St. Louis area, however these external files were not used since MOBILE6 will not run the lower cutpoint values. The MOBILE6 default cutpoint file was used instead.

The I/M effectiveness was modeled at 50% for both HC and CO, and 0% for NO_x. This is reflective of the true I/M benefits observed with the I/M program for years 1983-1999.

The VMT by facility is also specific to the St. Louis nonattainment area. The EWGCC provided data on VMT by facility by speed for each county and St. Louis City. EWGCC further divided this data into the AM and PM peak driving periods. The data was further divided into VMT by facility by speed by hour using technical guidance provided by the EPA. The external files that contain this information are named FrCoSVMT.def and St LoSVMT.def for the Franklin County and St. Louis area, respectively. The key planning assumptions that were utilized in the development of VMT data are population and employment forecasts. EWGCC utilized a document entitled “ Legacy 2025 and FY 2003-2007 Transportation Improvement Program” and Appendix B: Population and Employment Forecasts. Population and employment data were consistent with the area source inventory assumptions.

Due to the differences in the I/M programs implemented in Franklin County versus the St. Louis area two MOBILE6 input files were created, one for each area. The emission total represents the combined emissions from the two separate MOBILE6 runs. Copies of the MOBILE6 input files and any external files called into the model are included in Appendix D. St. Louis city and St. Louis, St. Charles and Jefferson County gasoline-powered light-duty vehicles are currently subject to a biennial, centralized, enhanced I/M program, consisting of IM240 and gas cap testing for 1981 and newer model year vehicles, BAR 97 testing for 1981 and newer model year vehicles that cannot be IM240 tested, BAR 90 testing for 1971-1980 model year vehicles, and advisory-only OBD II testing for 1996 and newer model year vehicles. Franklin County gasoline-powered light-duty vehicles are currently subject to an annual, centralized, basic I/M program, consisting of BAR 90 testing for 1971 and newer model year vehicles, gas cap testing for 1981 and newer model year vehicles, and advisory-only OBD II testing for 1996 and newer model year vehicles._

Both areas are covered by the RapidScreen element of the Gateway Clean Air Program, which exempts the cleanest vehicles from a station-based test.

Table 6.4
Missouri Portion of the St. Louis Nonattainment Area Average
Summer Day Vehicles Miles Traveled (VMT)

Year	VMT (in million miles)		Total
	Franklin Co.	St. Louis area*	
1990			
2000	3.75	55.81	59.56
2004**	4.11	64.25	68.36
2007***	4.40	68.79	73.19
2014***	5.16	80.66	85.82

* St. Louis area is the City of St. Louis, Jefferson, St. Charles and St. Louis Counties

** Actual VMT from EWGCC

*** Growth rate of 2.3% per year from year 2004

7. Contingency Measures

7.1. Contingency Measures

Section 175A of the CAA requires that the maintenance plan include provisions for contingency measures to promptly correct any violation of the one-hour ozone NAAQS after redesignation to attainment. A list of potential contingency measures that could be considered for future implementation in such an event should also be included in the maintenance plan.

Contingency measures are intended to provide further emission reductions in the event that violations of the one-hour ozone NAAQS occur after redesignation to attainment. While these measures do not need to be fully adopted by the MACC prior to the occurrence of

NAAQS violations, the contingency plan should ensure that the contingency measures are adopted expeditiously once they are triggered. The maintenance plan must clearly identify the triggers that determine when contingency measures will be adopted. The plan should also identify the measures that the state will consider.

The department's Air Pollution Control Program and IEPA have developed a contingency plan for the St. Louis NAAQS. This plan is summarized in Table 7.1. Consistent with this plan, Missouri agrees to adopt and implement, as expeditiously as is practicable, the necessary corrective actions in the event that violations of the one-hour ozone NAAQS occur anywhere within the St. Louis maintenance area after redesignation to attainment. The implementation of contingency measures under Level I or Level II triggers within 24 months unless the department's Air Pollution Control Program demonstrate that technical or economic feasibility warrants and implementation longer than 24 months.

With respect to the OBD measures listed in Table 7.1, the department's Air Pollution Control Program requests that the OBD test measures in 40 CFR Parts 51 and 82 be placed in the contingency measures portion of the SIP, upon redesignation of the area to attainment. The department's Air Pollution Control Program has legislative authority to adopt the OBD program specified in EPA regulations. The department's Air Pollution Control Program will adopt or consider adopting regulations to implement EPA's OBD testing requirements to correct a violation of the ozone standard. The schedule for adoption, if this contingency measure is selected, is as follows:

- Three months from notification by EPA that the area is in violation of the standard-propose the necessary regulatory changes for adoption by the MACC.
- Five months from notification – present proposed revisions for public hearing.

- Six months from notification – request MACC adoption of the revisions
- Ten months from notification (no later than 18 months after notification) – submit adopted regulations to EPA as a SIP revision.

Table 7.1
Contingency Plan for the St. Louis One-Hour Ozone Nonattainment Area

Contingency Measure Trigger	Action to be Taken	List of Potential contingency measures
<p><u>Level I Trigger</u></p> <ul style="list-style-type: none"> • Monitored ambient levels of ozone exceeding 124 ppb more than once per year at any monitoring station in the St. Louis maintenance area, or more than two exceedances in any two or three year period. • The St. Louis maintenance area's NOx or VOC emissions inventories for 2005 or 2008 increase more than 5% above the levels included in the 2000 emissions inventories. 	<p>MO and IL shall work cooperatively to evaluate the exceedances, or determine if adverse emissions trends are likely to continue. If so, the states will determine what and where controls may be required, as well as level of emissions reductions needed, to avoid a violation of the NAAQS. The study shall be completed within 9 months. If necessary, control measures shall be adopted within 18 months of determination and implemented as expeditiously as practicable, taking into consideration the ease of implementation and the technical and economic feasibility of selected measures..</p>	<p>Point Source Measures</p> <ul style="list-style-type: none"> • NOx SIP Call Phase II (non-utility) • Apply RACT to smaller existing sources • Tighten RACT for existing sources covered by EPA CTGs. • Expanded geographic coverage of current point source measures • MACT controls for industrial sources • LAER and offsets • Other measures to be identified <p>Mobile Source Measures</p> <ul style="list-style-type: none"> • TCMs, including, but not limited to, area-wide rideshare programs, telecommuting, transit improvements, and traffic flow improvements. • High Enhanced I/M (OBDII) • California Engine Standards • Other measures to be identified <p>Area Source Measures</p> <ul style="list-style-type: none"> • California Architectural/Industrial Maintenance (AIM) • California Commercial and Consumer Products • Broader geographic applicability of existing measures • California Off-road Engine Standards • Other measures to be identified
<p><u>Level II Trigger</u></p> <ul style="list-style-type: none"> • A violation of the NAAQS at any monitoring station in the St. Louis maintenance area. 	<p>MO and IL shall work cooperatively to conduct a thorough analysis to determine appropriate measures to address the cause of the violation. Analysis shall be completed within 6 months. Selected measures shall be adopted within 18 months and implemented as expeditiously as practicable, taking into consideration the ease of implementation and the technical and economic feasibility of selected measures.</p>	

The contingency plan provides for different levels of corrective responses should the one-hour ozone NAAQS be exceeded or violated, or if emissions in the region increase significantly above current levels. A Level I response would occur in the event that: 1) the ozone NAAQS is exceeded more than once per year at any monitoring site or more than twice in any two or three year period, or 2) if VOC or NO_x emissions increase more than 5% above the levels contained in the attainment year (2000) emissions inventory. To facilitate the emissions trends analysis included in the contingency plan, Missouri commits to

compiling VOC and NO_x emissions inventories every three years for the duration of the maintenance plan. Missouri and Illinois will coordinate to evaluate the causes of the exceedances or the emissions trends, and to determine appropriate control measures needed to assure continued attainment of NAAQS for ozone. Under Level I, measures that could be implemented in a short time would be selected so as to be in place within 18 months after Missouri is aware that corrective measures have been triggered. It should be noted that EPA does not require a state to implement contingency measures when occasional exceedances are recorded.

A Level II response would be implemented in the event that a violation of the one-hour ozone NAAQS were to be measured at a monitoring site within the St. Louis maintenance area. In order to select appropriate corrective measures, Missouri will work with Illinois to conduct a comprehensive study to determine the causes of the violation, and the control measures necessary to mitigate the problem. The comprehensive analysis will examine:

- the number, location, and severity of the ambient ozone concentrations;
- the weather patterns contributing to ozone levels;
- potential, contributing emissions sources;
- the geographic applicability of possible contingency measures;
- emissions trends, including timeliness of implementation of scheduled control measures;
- current and recently identified control technologies;
- air quality contributions from outside the maintenance area.

Contingency measures will be selected from those listed in Table 7.1 or from any other measure deemed appropriate and effective at the time the selection is made. This list of contingency measures is comprehensive, and it is expected that only a few of these measures

would be required. The selection between measures will be based upon cost-effectiveness, emission reduction potential, economic and social considerations, ease and timing of implementation, or other appropriate factors. Implementation of necessary controls in response to a Level II trigger will take place as expeditiously as possible, but in no event later than 18 months after Missouri makes a determination, based on quality-assured ambient data, that a violation of the NAAQS has occurred.

Adoption of additional control measures is subject to necessary administrative and legal processes. The department's Air Pollution Control Program will solicit input from all interested and affected persons in the area prior to selecting appropriate contingency measures. No contingency measure will be implemented without providing the opportunity for full public participation. This process will include publication of notices, an opportunity for public hearing, and other measures required by Missouri law.

7.2 Commitment to Revise Plan

In accordance with section 175A of the CAAA, the department's Air Pollution Control Program commits to review and revise the maintenance plan as necessary every eight years after redesignation. The department's Air Pollution Control Program will consider additional measures if required to ensure such maintenance or attainment of the one-hour ozone standard.

7.3 Public Participation

The department is required to notify the public and other interested parties of an upcoming public hearing and comment period 30 days prior to holding such hearing. The public

announcements for the maintenance plan were published in newspapers on September 23, 2002. Copies of the proposed plan were mailed to interested parties, department regional offices and city and county libraries. After the public hearing and comment period, the department responded to all comments, and revised the plan based on the comments it received. The maintenance plan is scheduled for adoption on December 5, 2002. The department will then send the maintenance plan and a redesignation request to EPA along with all the public comments received, and responses to those comments. EPA will also hold a 30-day public comment on its decision to approve or deny the request to re-designate St. Louis area from non-attainment to attainment for the one-hour standard.

7.4 Legal Authority to Implement and Enforce

The MACC is granted legal authority to develop and implement regulations regarding air pollution under section 643.050 of the Revised Statutes of Missouri.